

Nest Cavity Availability Determines Breeding in Hornbills: Rufous-necked Hornbill Nest at Breast Height in Bhutan

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Hornbills are a large-bodied, wide-ranging and ecological significant group of birds in the tropical and subtropical forests of Africa and Asia (Kinnaird and O'Brien 2007; Keartumsom et al. 2011). Known as farmers of forest, hornbills play important functional role as seed dispersers in the tropical ecosystem (Kitamura 2011). Among 62 living species of hornbills occurring globally, 32 species are reported to inhabit Asian forests, with four species occurring in Bhutan (IUCN-Hornbill SSC Group, 2019). The Rufous-necked hornbill (RNH, Family Bucerotidae, Order Bucerotiformes) is distributed in the evergreen forests of Bhutan, Myanmar, China, Thailand, Laos, Vietnam, and Northeast India (IUCN, 2019). With an estimated global population of 7000 to 10,000 mature individuals, it has been classified in vulnerable category (IUCN, 2019) owing to the rapid decline in population as a result of the destruction of evergreen forest and hunting (Bird Life International 2001). Here, we report an observation of an unusually low nest of Rufous-necked hornbill in south-central Bhutan.

During an ecological study from July 2014 to May 2016, a nest of the Rufous-necked hornbill was observed as low as at the breast height at Patsaling geog, Tsirang Bhutan (26°55'29.87"N, 90°6'17.57"E) at an elevation of 980 masl (Fig. 1). The

nest was located at only 1.3 m above ground on a *Crateva religiosa* tree. The nest tree has the diameter of 180 mm with the height of 19 m. Following south east aspect, the nest tree was located on a steep slope with the gradient of 45° in a warm broad-leaved forest under Tsirang Forest Division jurisdiction. Since 2016, the nest has been monitored during the breeding season (between March to August) till date. The breeding pair successfully nested for last three years, fledging with one to two chicks annually (Table 1).

According to Kemp (1995), the nest height range of Rufous-necked Hornbill ranges from 10 – 20 m above the ground. Similarly, Dorji (2013) during his study on RNH in Jigme Singye Wangchuck National

Table 1. No. of chicks fledged

Year	No. of chicks fledged	Sex of juveniles
2016	2	1 male and 1 female
2017	1	1 male
2018	Inactive	-
2019	2	1 male and 1 female



Fig. 1. The sealed nest cavity of Rufous-necked hornbill at 1.3 meters above ground.



Fig. 2. Male Rufous-necked hornbill feeding his family.

Park, Bhutan, reported the nest height at 10 – 20 m, consistent with Kemp (1995). Further, Rufous-necked Hornbill nests at cavity height range from 6.1 m to 33 m were recorded during their breeding biology study at Huai Kha Khaeng Wildlife Sanctuary in

western Thailand (Chimchome et al. 1995). Sherub and Tshering (2019) recorded an inactive nest during their population assessment and nesting behavioural study at Gomphu in Zhemgang, Bhutan, at 2 m above the ground with the nest height range



Fig. 3. Male juvenile Rufous-necked hornbill of 2017.

from 2 to 23 m above ground. Our present record confirms the lowest nest cavity height (1.3 m) recorded for Rufous-necked Hornbill. The bird might have opted to nest at the lower height as they found a suitable nest cavity without disturbance. Moreover, the nest tree is located on a steep area where it is hard for human and other predators to access. Also, the strong conservation policies, rules and regulations, and patrolling carried out by the frontline staff of Tsirang Forest Division, Bhutan, has ensured there is no record of hornbill poaching in the area. We recommend continuous annual monitoring of the nest site and initiating suitable nest management activities, if deemed necessary, in the coming years. Further, a detailed study on nest tree availability, nest tree selection, nest site selection and nesting architecture of Rufous-necked Hornbill in the study area is deemed necessary.

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